

LANDSCAPING AND RESTORATION PLAN

OF NULTY QUARRY AT

ARDKILMORE, CARRICKABOY, CO. CAVAN



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1.0 INTRODUCTION

This Landscaping and Restoration Plan (LRP) forms part of the Further information Request relating to Planning Reference 19/227 Item 10 which requested *“Submit details of the restoration plan in terms of proposals for same as well as a timetable for its implementation. The Planning Authority notes that some phases of the restoration plan for implementation and should not affect further development of current application”*.

Upon the cessation of extraction operations, it is proposed to return the quarry lands to natural habitat, similar to the existing ecological habitat.

Where feasible, restoration of exhausted and redundant areas will be carried out at the earliest opportunity. However, it is envisaged that phase 3 and phase 4 of restoration will be carried out after all extraction operations at the site have ceased.

The objectives of the LRP are to show the phased working, restoration, landscaping and aftercare of the quarry.

- (i) Detailed arrangements for the storage of overburden including extent and profile of stockpile during phases of development of the Quarry Extension.
- (ii) Detailed arrangements for the progressive restoration of the quarry with the higher faces restored as soon as practicable after working.
- (iii) Detailed proposals for hydroseeding/tree seeding temporary bunds and restored ground profiles and timescale for implementation.
- (iv) Fencing and hedging around the boundaries of the site.
- (v) Incorporation of recommendations to mitigate impacts as set out in the EIAR under Biodiversity.

The LRP addresses restoration, revegetation, and non-vegetative measures for interim visual integration of some upper rock faces, while revegetation matures. Revegetation is an important aspect to mitigating the visual impact of the quarry and enhancing the ecological integrity.

2.0 QUARRY DESCRIPTION

The site at Ardkil More, Carrickaboy, Co. Cavan comprises of an existing quarry, proposed extension and rough agricultural lands. The LRP includes the area of 1.04h to the southeast of the site. There are a small number of buildings currently on the site including offices, canteen, toilets, store and machinery work-shop, weigh-bridge, wheel wash facility and mobile crusher. The buildings are located beside the site entrance near the western site boundary.

The restoration phases for the quarry site are shown in Figure 1.1. The application area will be restored to a natural habitat, which is one of the beneficial after uses listed in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006).

The restoration works will be carried out in accordance with the EPA Guidelines (2006) on a phased basis.

3.0 CURRENT HABITATS WITHIN THE APPLICATION EXTENSION AREA

The main habitats within the proposed 1.04ha extension area include the following:

- (ED4) Active quarries and mines;
- (ED1) Exposed sand, gravel or till;
- (ED2) Spoil and bare ground;
- (ED3) Recolonising bare ground.

Undisturbed habitats immediately surrounding the quarry include the following:

- (HH1) Dry siliceous heath;
- (HH3) Wet heath;
- (GS3) Dry-humid acid grassland;
- (GS4) Wet grassland;

4.0 LANDSCAPING AND RESTORATION DETAILS

Landscaping Objectives

The aim is to restore the site using locally-occurring vegetation. Therefore, the species selected mirror as closely as possible those that exist in the immediate vicinity of the site. There will be a phased approach to the rehabilitation of the quarry. The restoration plan includes a range of measures to restore the quarry site to an after use which would be more sympathetic with the surrounding landscape. Refer to drawing PL 17-169-03 figure 1.4.

Phase 1

Phase 1 is predominantly based along the western boundary of the quarry to the right of the main entrance. Tree planting in this area will create a natural screening belt from the local road to the west. This will take place Spring 2020.

Phase 2

Phase 2 is a long rectangular section along the southern boundary. Grassland/Heathland and scrub establishment will be the main objective here. Tree seeding has been proposed as the method of restoration for vegetation in this area of the quarry. This will create natural screening and habitat. This will take place Nov-Dec 2020.

Phase 3

Phase 3 is located to the east of the site, where current quarry operations are taking place. Where possible, in this area soil will be imported and left for vegetation to develop naturally, with heath and scrub species colonising the bare ground. Some of the soil over burden from the new extension will be used to cover the rock face.

Phase 4

Phase 4 located in the southwest corner of the site will be reinstated using vegetation to mirror what is currently at the site e.g. Heather, Gorse and Grasses. Rock faces that are too steep to landscape will be left for natural recolonisation by locally occurring grass and shrub/scrub species. The buffer provided at this location will include an embankment and native planting to protect views to the south east of the site. It is anticipated that this will occur as soon as practicable after cessation of the quarry operations.

5.0 LANDSCAPING TECHNIQUES

Direct Tree and Shrub Seeding

In circumstances where trees and/or shrubs are required, direct tree seeding offers a viable alternative to conventional planting in hostile environments e.g. the poor substrates and steep slopes which will characterise the restored landform at Ardkillmore Quarry. Vegetation establishment by conventional means is difficult to achieve in such conditions. This technique involves the sowing of tree and shrub seed directly onto the restoration surface, resulting in a plant community with a natural appearance that adapts to its immediate environment.

Grassland/Heathland and Scrub Establishment

Simple grassland/heathland and scrub mixture, is to be applied using combined direct tree and shrub seeding at an appropriate rate to the final restoration profile of the quarry: Gorse (shrub), Hawthorn (Tree), Heather, Heath Rush and Fescue mix. Hawthorn and gorse comprise a small percentage of the above mix to accelerate the process of natural regeneration. Over time, the site will be colonised by species from adjacent plant communities, which is desirable to ensure that locally indigenous species recolonise the former quarry. In the medium to long term, natural succession will occur and areas so treated will evolve into a scrub habitat, with similar characteristics to the existing adjacent scrub habitats. Heath Rush is included in the mixture to provide a degree of erosion control. In less accessible parts of the site on nutrient-poor soils, grassland may develop into self sustaining species-rich semi-natural grassland without the need for mowing.

Large areas of the site are inaccessible due to steep slopes and in these areas mowing will not be feasible. In such circumstances, the treatment will seek to maximise the potential for development of a self-sustaining treatment using low-fertility soils with a programmed regime for the control of invasive or inappropriate weed and grass species, including self-seeding tree and shrub species, e.g. Sycamore. The initial low soil fertility should provide for the gradual development of species-rich semi-natural grassland which, in the absence of a mowing regime, will facilitate a natural longer term succession to scrub. The establishment of scrub in the absence of mowing will provide an undisturbed refuge for fauna, particularly for less mobile and invertebrate species that may otherwise be significantly disturbed by typical grassland maintenance regimes.

The seed mixture is to be sown evenly into a prepared substrate. Establishment of seeded areas is expected to take 12-18 months. During this period there will be no cutting back or other uses of the area. In the second year of establishment the area will be cut (where feasible) in early spring and mid to late summer. Areas of poor establishment will be re-seeded in the second year.

Tree/Shrub Planting

Soils stripped from the quarried area shall be put into temporary storage in an overburden stockpile. The outer faces are to be planted to ameliorate the visual impact of the quarry and aid its integration into the landscape. The best means of establishing vegetation on the boundary will be to plant tree/shrub species which are already present on the slopes in the area and capable of tolerating the prevailing conditions. Planting will be undertaken using Hawthorn, Eared Willow and Gorse transplants (45-60cm) at 2m centres.

Hedgerow Planting

Hedgerows are proposed to the north and south perimeters of the quarry, comprising the following species: Gorse, Beech and Hawthorn. All hedgerows are to be planted in a double staggered row, rows shall be 500mm apart and plants within each row shall be planted at 300mm centres.

6.0 PREPARATION AND PLANTING

Bareroot Planting

Plant stock of native origin and local provenance is to be used where possible. Transplants will have a vigorous leading shoot and will be appropriately furnished with laterals according to species and age. The plants will have been either undercut or transplanted at least once.

The root systems of each bare root plant will be thoroughly immersed in 'Broadleaf root dip (or similar approved) in accordance with the manufacturer's instructions at the nursery immediately after lifting.

Plant Handling

Plant material will be carefully lifted, packed and protected to survive transportation to site without damage during loading, transit, unloading and storage. Any roots, branches or shoots that are slightly damaged will be carefully pruned prior to planting. Plants will be replaced if they are found to have been inadequately packed or severely damaged or have become desiccated

Planting will be carried out as soon as possible after delivery to site. Where planting must be delayed, care will be taken to protect plants from theft, damage and adverse weather conditions. All plants will be stored or otherwise protected in the following manner.

- Bare-root plants will be thoroughly heeled-in to topsoil, or a suitable moisture retentive medium as soon as received;
- All plant bundles will be opened and plants loosely distributed within the medium to prevent mould and/or disease rotting; and
- All plants will be supported upright as required for the prevailing conditions.

All tree and/or shrub species will be planted using pit planting techniques. The pit will be sufficiently large to allow the root system to be amply spread out with the sides and base of the pit broken up to allow ease of root penetration.

All trees will be protected and secured using 2 no. 900 x 32 x 32mm softwood stakes driven in to 400mm depth around shrubs (or similar approved).

7.0 ESTABLISHMENT AND AFTERCARE

Tree and Shrubs

Measures will be adopted to reduce the competition from weeds for water, light and nutrient resources using chemical and, where appropriate, physical means. During the first three years after planting each planting compartment will be kept free of ground vegetation by an appropriate herbicide application

For the following 2 years herbicide applications will be made as follows:

- A visit in late spring and in summer will be made for the application of herbicide plus wetting agent. Weedy vegetation will be removed from within any shelters used, and shelters refirmed during the same visit;
- A visit in early winter will be made for application of residual herbicide.
- In early summer, an assessment of pests and invasive weeds will be made and recommendations formulated for implementation during the same year. At the end of the second year of establishment, a granular fertiliser application will be made around the base of each tree and shrub.

Hedgerows

All planted hedgerows will be maintained for five years after planting to ensure that:

- Weed-free corridors of minimum 1.5m width are maintained from the centre-line of each hedgerow, to reduce the competition from grasses for water and nutrients;
- Replacement of failures is undertaken at the start of the next planting season following death to ensure that a minimum 90% stocking is carried through to the next season;
- Existing vegetation adjacent to gapped-up areas is pruned to ensure that shading does not inhibit the new plant growth; and
- Formative pruning is undertaken at the appropriate stage of development to ensure a good 'A-shaped' hedge profile develops.

8.0 FENCING DETAILS

The following specification of fencing will be installed to the perimeter of the site.

Timberwork

- To be of an approved pressure-treated softwood (except thrust plates- oak) to BS 4072, straight and free from defects and rot. Any newly-cut timber to receive immediate treatment with an approved preservative.

Strainers

- 2m long x 0.15m round straining posts set at approximately 50m intervals or at changes in direction to be dug in to a depth of 1.0m precisely and well firmed by the ramming of backfill material. 0.15m x 0.05m x 0.60m cross-member to be fastened on the lower end of the straining posts. They will be positioned so as to oppose the strain on the post.

Stakes

- 1.7m long x 0.10m round, peeled and pointed intermediate stakes to be spaced at 3.0m intervals and well-driven to a depth of 0.7m, left firm, upright and of an even height on completion. Additional stakes may be required on undulating ground.

Struts:

- 2m x 0.10m round strut to be notched into and nailed to upper end of straining posts, secured by nailing to a well-driven 0.6m x 0.10m round thrust plate stake positioned 1.6m from the post.

Wires

- 3 galvanised 10SWG plain wires to be strained and fastened with galvanised staples at 300mm, 600mm and 1000mm above ground surface.

9.0 SITE MANAGEMENT AND SUPERVISION

John Nulty Ltd. will clearly define the management responsibility for the site restoration work and will ensure that this person has the necessary information (from the planning application) and authority to manage the whole restoration process. Relevant staff will be briefed on the scheme and will be adequately supervised / controlled. A system of record keeping for the key restoration activities will be put in place.

Long Term Safety and Security

Existing hedges surrounding the development will be gapped up and thickened where required. These combined with fencing and the secure and locked entrance gates to the development will prevent unauthorised third party access.

Long Term Surface Water and Groundwater

Surface water will percolate to ground or be directed to the water body within the void created by quarrying – refer to EIAR Chapter 7. On completion of extraction operations a lake will be formed on site as groundwater returns to its natural level.

Decommissioning of Plant and Machinery

Redundant structures, plant equipment and stockpiles will be removed from site on permanent cessation of extraction activity. As part of the overall decommissioning process, all fuel, oil storage and septic / effluent treatment tanks within the existing site will be removed from the site by a licensed waste contractor. Therefore there will be no potential for fuel, oil or sewage to cause long-term water pollution following completion of extraction activities.

Aftercare and Monitoring

No aftercare or monitoring is required for the restoration proposals for the application area.

10.0 CONCLUSION

Restoration is an integral part of the site management process and form an important aspect of the quarry industry. Where practicable a phased restoration process is carried out. Final restoration of phase 3 and phase 4 will be initiated when extraction is completed. The aim of any natural restoration plan is to restore ecological balance and to produce self-sustaining plant and wildlife communities and habitats. Quarry sites can create both terrestrial and wetland habitats for wildlife, significantly contributing to Ireland's biodiversity

The application area will be restored to a natural habitat, which is one of the beneficial after uses listed in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006). This will be achieved by the following measures:

- All existing boundary fences and hedgerows will be retained to ensure that the site is secure.
- All plant and machinery will be removed from the quarry void.

Surface water will percolate to settlement ponds and discharge to the local water course. Existing hedges surrounding the development will be interplanted with native species and thickened where required. These combined with fencing and the secure and locked entrance gates to the development will prevent unauthorised third party access. The restoration works will be carried out in accordance with the EPA Guidelines (2006) on a phased basis.

Figure 1.1 Landscape and Restoration Phases



Figure 1.2 Habitat Map of the Proposed Extension Area of 1.04ha (Phase 4)

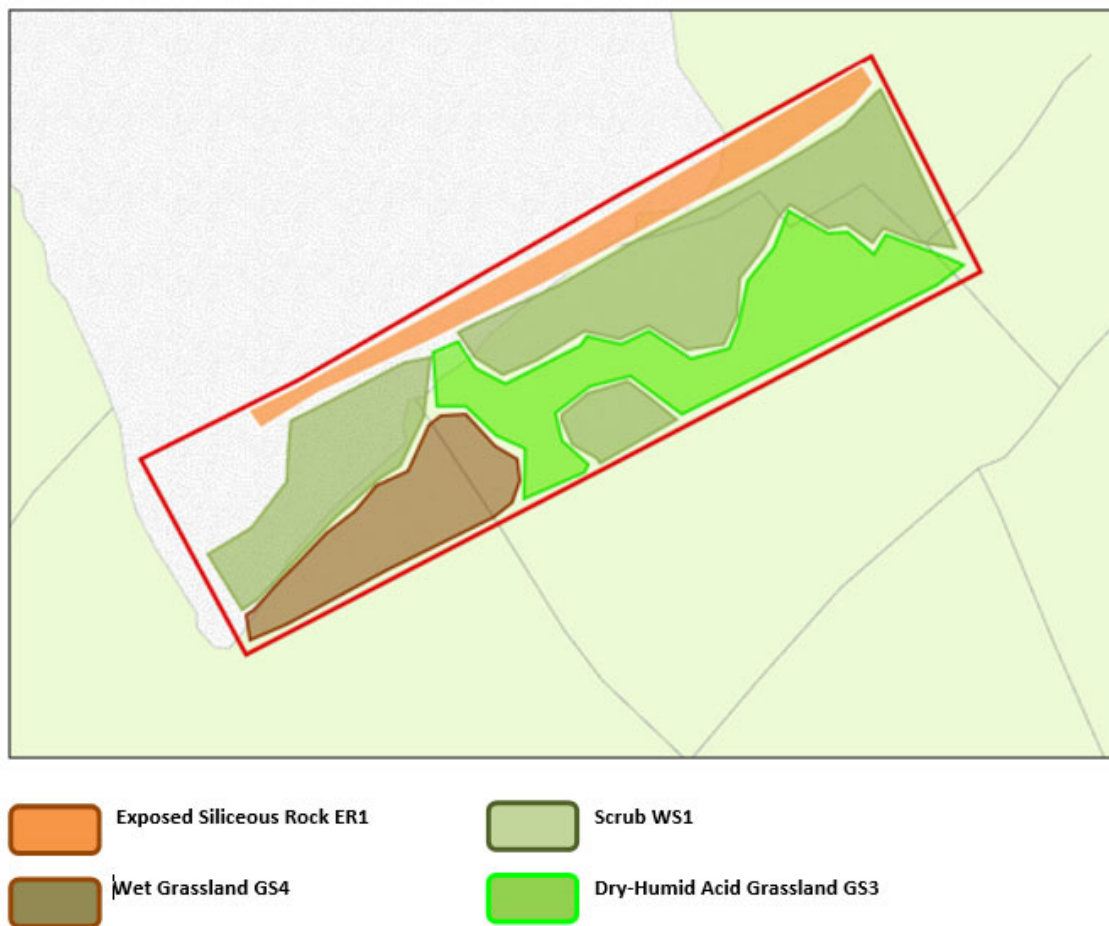


Figure 1.3 6inch historical OSI Map

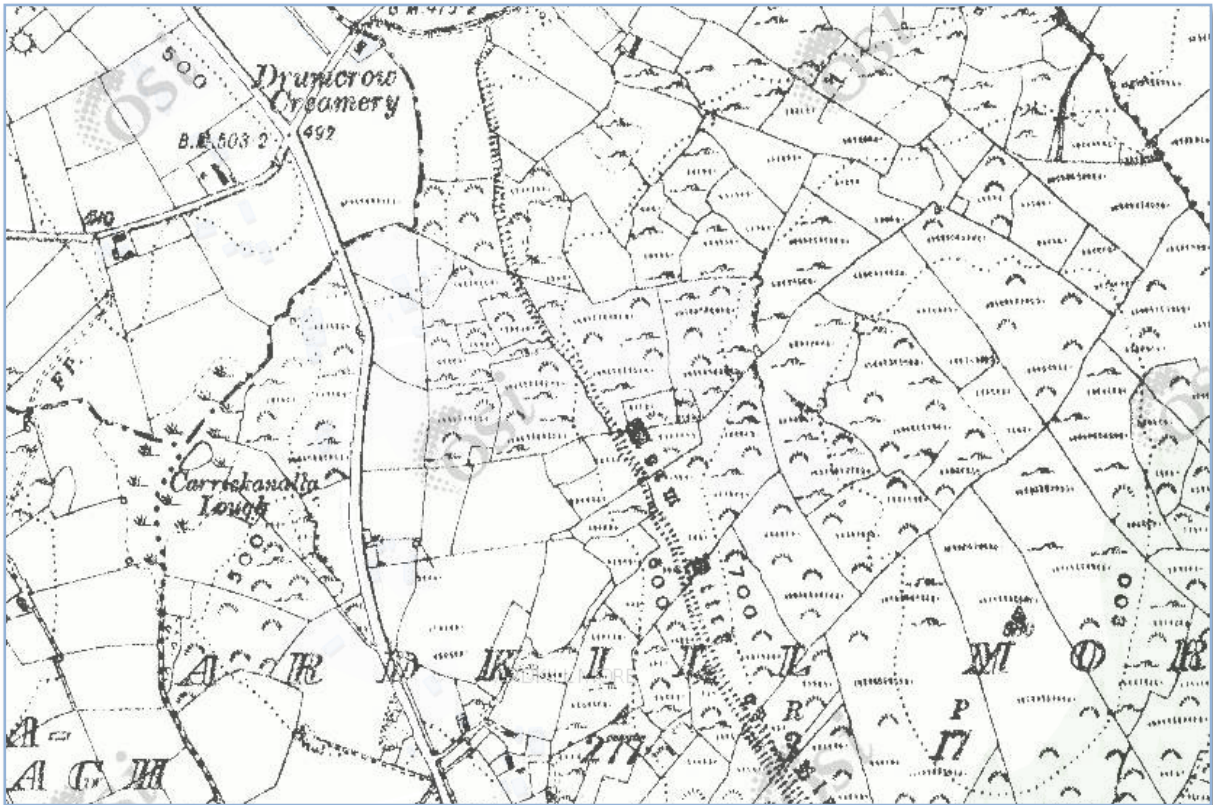


Figure 1.4 Landscape Mitigation & Restoration Plan

